metal may be used for the opaque substrate **1**. When the substrate **1** is transparent, the image display portion **2** may emit light toward the substrate **1** and/or the sealing element **3**. When the substrate **1** is opaque, the image display portion **2** emits light toward the sealing element **3**.

In an embodiment of the present invention, the substrate **1** may be flexible. In this case, the substrate **1** may comprise a plastic material. However, the substrate **1** may be made of various materials including thin glass or metal.

For example, plastic materials used to form the substrate **1** may include polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polycarbonate (PC), polyether sulfone (PES), etc.

When the substrate **1** is made of plastic, the image display portion **2** may be formed directly on the substrate **1**, as shown in FIG. **3** and FIG. **4**, so that a protection layer for protecting the image display portion **2** from water and air is not formed on the substrate **1**. Since such a protection layer includes an inorganic layer, which may be difficult to form, it is preferable that a protection layer is not formed on the substrate **1** having the image display portion **2** formed directly thereon.

According to an embodiment of the present invention, the sealing element **3**, which seals the image display portion **2**, may be transparent or opaque. When the substrate **1** is transparent, the sealing element **3** may be formed of either a transparent material or an opaque material. On the other hand, when the substrate **1** is opaque, the sealing element **3** is formed of a transparent material.

Glass or plastic may be used to form a transparent sealing element **3**, and glass, plastic, or metal may be used to form an opaque sealing element **3**. In the embodiment of FIG. **1** and FIG. **2**, the substrate **1**, the image display portion **2**, and the sealing element **3** are all shown as having plate shapes.

When the sealing element **3** is a plastic plate, the plastic plate may have no protection layers, as in the case where the substrate **1** is made of plastic. However, the present invention is not limited to this embodiment, and the sealing element **3** may be a plastic plate having a protection layer formed on at least one surface thereof. Such a protection layer will be described in greater detail later.

Edges of the sealing element **3** are coupled to the substrate **1** using a first sealant **71**. The first sealant **71** may be a thermosetting adhesive and/or an ultraviolet thermosetting adhesive. Alternatively, the first sealant **71** may be frit glass.

Although not shown in the drawings, a moisture absorbing agent may be included in the space between the substrate **1** and the sealing element **3**. The moisture absorbing agent, which absorbs oxygen and water, may be made of barium oxide, calcium oxide, or porous oxide. Examples of the porous oxide include porous silica, hydrated amorphous alumina, or a compound thereof. The hydrated amorphous alumina may be at least one of bohemite (AlOOH) and bayerite ($Al(OH)_3$). The moisture absorbing agent may be any other material that absorbs oxygen and water.

Pads (not shown) coupled to the image display portion **2** are exposed on one end of the substrate **1**. A flexible printed circuit-board (FPC) **6** is bonded to the pads. The FPC **6** provides power to the image display portion **2** and is coupled to external electronic devices to provide various signals to the image display portion **2**. After forming the light-emitting device **10**, the light-emitting device **10** may be seated on the enclosure **4**.

An adhering unit **73** may be formed on the enclosure **4**, and the substrate **1** of the light-emitting device **10** is bonded to the adhering unit **73** to be seated on the enclosure **4**. The adhering unit **73** may be a thermosetting adhesive and/or an ultraviolet thermosetting adhesive. Alternatively, the adhering unit **73** may be double-sided adhering tape. The adhering unit **73** may contain the above-described moisture absorbing agent. Additionally, the adhering unit **73** may be replaced by a moisture absorbing unit, such as, a moisture absorbing agent or a moisture absorbing tape.

After the substrate **1** is seated on the enclosure **4**, the enclosure **4** may be bent as shown in FIG. **1** and FIG. **2** to seal the light-emitting device **10**. Because the enclosure **4** has a second sealant **72** formed along its edges, two ends of the enclosure **4** may be bonded together. The second sealant **72** may be a thermosetting adhesive and/or an ultraviolet thermosetting adhesive. Alternatively, the second sealant **72** may be frit glass.

Because the enclosure **4** is bent to seal the light-emitting device **10**, it is preferred that the enclosure **4** is flexible.

When the enclosure **4** comprises a single sheet to seal the light-emitting device **10**, only three portions need to be bonded. Having fewer bonded portions may improve the sealing effect.

As FIG. **5** shows, the enclosure **4**, may include a base film **41** having a protection layer **42**.

According to an embodiment of the present invention, the base film **41** may be made of plastic.

The protection layer **42** may be formed of a transparent material that blocks water and air. The protection layer **42** includes at least one inorganic layer **421**, which may be formed of metal oxide, metal nitride, metal carbide, metal oxynitride, or a compound thereof. Examples of the metal oxide include silica, alumina, titania, indium oxide, tin oxide, indium tin oxide, and a combination thereof. Examples of the metal nitride include aluminum nitride, silicon nitride, and a combination thereof. The metal carbide may be a silicon carbide, and the metal oxynitride may be silicon oxynitride. Alternatively, the inorganic layer **421** may be formed of silicon, a ceramic derivative of silicon, or a ceramic derivative of metal. Furthermore, the inorganic layer **421** may be formed of any inorganic material that can block permeation of water and oxygen, for example, diamond-like carbon (DLC).

The inorganic layer **421** may be formed by vacuum deposition. In this case, pores included in the inorganic layer **421** may keep growing. Hence, a polymer layer **422** may be included to prevent the pores from continuously growing at the initial locations. The polymer layer **422** may be formed of an organic polymer, an inorganic polymer, an organometallic polymer, a hybrid organic/inorganic polymer, etc.

The protection layer **42** may be formed on an inside surface of the base film **41**, as shown in FIG. **5**, and it may also be formed on an outside surface thereof.

The enclosure **4** shown in FIG. **5** is preferably transparent. Hence, the protection layer **42** is also preferably formed of a transparent material.

The enclosure **4** may be sealed by thermal pressing instead of using the second sealant **72**. In other words, a part of the enclosure **4** is thermally pressed so that the enclosure **4** may not include the protection layer **42** anymore. This thermal pressing preferably occurs on a part of the enclosure **4** to which the FPC **6** is bonded, because the part of the enclosure **4** can be bonded to the FPC **6**.

When the enclosure **4** includes the plastic base film **41** having the protection layer **42**, the protection layer **42** can be formed using a separate process. Thus, the process of making an encapsulated organic light-emitting device may be simplified, and the process of forming the protection layer **42** may also be simplified.

When the enclosure **4** having the protection layer **42** is curved as shown in FIG. **1** and FIG. **2**, without the supporter